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CURRENT LITERATURE

BOOK REVIEWS

Manual of American grape-growing

This book by HEDRICK¹ belongs to the Rural Manual Series edited by L. H. BAILEY, and, like the rest of the series, aims to cover the field outlined in an up-to-date way. The book is intended to furnish practical working directions to the grower of grapes, whether he uses the native varieties of the eastern regions or the *vinifera* types of the West. The economics of the crop, as well as considerations of soil requirement; vineyard management, and disease control, are presented with clearness, precision, and even with charm of style.

The chapters on breeding and domestication are given increased interest by a brief but comprehensive reference to the very unusual history of grapes and grape-growing in America. The general reader is likely to be surprised to learn how many of our standard varieties have been simply transplanted from the places where they were originally found as mutants or very favorable variations from type. The Concord, Catawba, Scuppernong, Herbemont, Isabella, and a host of other varieties are such products of unaided nature. The hard road traveled by those who in the early times strove to establish the European kinds in the East is lightly indicated. It would hardly be possible in a work of this character to deal more fully with the almost romantic, almost tragic, history of the early pioneers in grape culture. The several determined attempts to grow the European grape financed by various wine companies formed by public spirited men, by colonial governments, and by experienced refugees successful in the wine-growing regions of Europe were all doomed to lingering death, whether located in Pennsylvania, Virginia, or Kentucky. The full story of this phase of our grape history is still to be written.

The taxonomist may be disappointed to find the chapter on "Grape botany" limited to the 11 horticulturally significant species. The author, however, is probably right in tacitly considering the relations in the genus as a whole to be the property of the specialist in plant classification, although he complains of the hazy ideas of those who have thus far dealt with the group.

The book is up to the standard in its mechanical execution. It is abundantly supplied with fine half-tone plates of the most important varieties.

¹ HEDRICK, U. P., Manual of American grape-growing. New York: Macmillan Co. 1919. \$2.50.

One may doubt, however, whether the cuts portraying the features of Prince, Rogers, and Munson flatter these leaders. As a whole, the book seems to do well what it is intended to do.—RODNEY H. TRUE.

NOTES FOR STUDENTS

Cactaceae.—It is probable that no monograph of a family is based upon more complete study than the monograph of Cactaceae by BRITTON and ROSE,² the first volume of which has just appeared. The illustrations are very numerous and admirable, and the colored plates are especially noteworthy. The authors began the study in 1904, and since that time the field work extended beyond North America, which was the original limit, so as to include the arid regions of South America as well. Those who are acquainted with the Cactaceae realize that not only are herbarium and field studies necessary, but also greenhouse studies, to discover the different phases that may appear during development.

The present volume includes the tribe Pereskieae, with its single genus *Pereskia*, represented by 19 species, 4 of which are new, and also the tribe Opuntieae, in which 7 genera are recognized, one of which is new (*Tacinga*). The large genus is *Opuntia*, with 264 species, grouped into 3 subgenera and 46 series, 32 of the species being new. New species are also described in *Pterocactus* (3) and *Nopalea* (2). All of the genera are illustrated, and of the 312 species 267 are represented by one or more illustrations. Of the 36 plates, 28 are in color.

The investigation has been financed chiefly by the Carnegie Institution of Washington, in cooperation with the New York Botanical Garden and the United States National Museum, while the United States Department of Agriculture has taken care of the living collections brought together in Washington. The completed monograph will consist of four volumes.—J. M. C.

Zinc and growth of *Aspergillus niger*.—STEINBERG³ finds that he gets maximum growth in cultures of *Aspergillus niger* in flasks of Jena glass without additions of zinc sulphate, while less than half maximum growth is given in pyrex and Kavalier Bohemian glass flasks without zinc additions, and maximum growth with such additions (10 mg. Zn/L). STEINBERG thinks this is explained by the fact that Jena glass contains considerable zinc, while the other glasses do not. This accords with analysis of Jena and Kavalier Bohemian glass, and with the experiments of other workers on the relation of zinc to the development of this organism. He has also worked with 2 strains of *A. niger*, which he terms *W* and *Y*, and finds that the former demands a higher concentration

² BRITTON, N. L., and ROSE, J. N., The Cactaceae. Publ. Carnegie Inst. Washington 1: pp. 236. pls. 36. figs. 302. 1919.

³ STEINBERG, R. A., A study of some factors influencing the stimulative action of zinc sulphate on the growth of *Aspergillus niger*. I. The effect of the presence of zinc in the cultural flasks. Mem. Torr. Bot. Club 17:287-293. 1918.